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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,350	02/09/2005	Sergey Vasilievich Marutian	P06835US00	2639

22885 7590 03/16/2007
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DES MOINES, IA 50309-2721

EXAMINER

BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/500,350

Applicant(s)

MARUTIAN ET AL.

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/29/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment of January 29, 2007, filed in response to the Notice of Non-Compliant amendment of January 18, 2007 has been received and entered. With the entry of the amendment, claim 1 remains pending for examination, replacement drawings have been filed, and amendments to the specification have been filed.

Specification

2. The abstract provided with the amendment of January 29, 2007 is approved.

3. The amendment filed January 29, 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The references to figures 1-4 at page 2 after line 15 and after line 18 all contain new matter. There is nothing to indicate in the disclosure as originally filed that Figure 1 is an exemplary apparatus for forming coated articles in accordance with the invention. There is also nothing to indicate that Figures 2-4 are diagrammatic illustrations of cross sections through embodiments of coated metal articles demonstrating various corrosion qualities or are a preferred embodiment of a coated metal article which may be in the form of a elongated, continuous strip.

Applicant is required to cancel the new matter in the reply to this Office Action.

4. The disclosure is objected to because of the following informalities: No reference to Figure 5 is provided in the "Description of the Invention" after the amendment of January 29, 2007. The figure needs to be referred to in the "Brief Description of the Drawings" (which has been done) and in the "Description of the Invention".

Appropriate correction is required.

Drawings

5. The drawings were received on January 29, 2007. These drawings are approved.

Claim Objections

6. The objections to claim 1 because of informalities is withdrawn due to applicant's clarifying amendments of January 29, 2007.

Claim Rejections - 35 USC § 112

7. The rejection of claim 1 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn due to applicant's clarifying amendments of January 29, 2007.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. The rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Higuchi et al (US 5853806) in view of Japan 50-005213 (hereinafter '213) is withdrawn due to applicant's amendment of January 29, 2007 to claim 1 to require coating without flux.

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rallis (US 4655852) in view of Japan 50-005213 (hereinafter '213).

Rallis teaches a method of applying aluminum alloy coatings on steel products. Column 2, lines 1-10, 34-50 and 64-68. Rallis teaches that the product is first prepared for coating. Column 2, lines 10-40 (heat treating) and column 6, lines 40-60 (heat treating and cleaning before coating). The cleaning preparation can include grit blasting (which would be a jet abrasive) the product. Column 6, lines 40-60. Rallis then teaches that the prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. Column 6, lines 55-68, for example and column 2, lines 35-50 and 64-68. The temperature of the bath can be 1000 to below 1341 degrees F (approximately 538 to 727 degrees C). Column 2, lines 34-40. Rallis further teaches that the bath can include aluminum alloyed with zinc, silicon, magnesium and tin materials. Column 2, line 64 through column 3, line 5. The Examiner understands Rallis to perform the application of the aluminum coating without flux, as the process of Rallis has no teaching of applying flux (see Examples I and II, for instance).

Rallis teaches all the features of this claim except the precise temperature of the melt bath and the precise amounts of zinc, silicon, magnesium, and tin to be used in the aluminum melt.

However, '213 teaches that a desirable aluminum alloy composition for improved corrosion resistance includes 2-18 % silicon, 2-8 % zinc, 0-2% magnesium and 0.1-1.5% Sn. See the Abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rallis to optimize the temperature of the melt bath for

the specific aluminum alloy used given that Rallis teaches a temperature range of approximately 538 to 727 degrees C, and where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, it would have been obvious to modify Rallis to perform the hot dip coating of the aluminum alloy using an alloy with the components and range taught by '213 with an expectation of providing a desirably corrosion resistant plated article, because Rallis teaches a desirable method for providing hot dip coating of an aluminum alloy on a steel product using an aluminum alloy that can contain aluminum, zinc, silicon, magnesium and tin and '213 teaches a desirable aluminum alloy containing aluminum, zinc, silicon, magnesium and tin for improved corrosion protection. It would further have been obvious to optimize within the taught range of '213 to determine the optimum or workable ranges by routine experimentation. See In re Aller, 200 F.2d 454, 105 USPQ 233 (CCPA 1955). The Examiner understands the ranges given in '213 to be in weight percent as the description is in the conventional format for describing weight percent of alloys.

12. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Giersek et al (US 4070210) in view of Rallis (US 4655852) and Japan 50-005213 (hereinafter '213).

Giersek teaches a method of applying aluminum alloy coatings on cast iron and steel products. Column 2, lines 35-65 and column 5, lines 25-26 and 44-45. Giersek

teaches that the product is first prepared for coating. Column 5, lines 25-35 (preheating and cleaning before coating). Gierek then teaches that the prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. Column 5, lines 25-35, for example and column 2, lines 35-65. The temperature of the bath can be 550-950 degrees C, such as 550 to 650 degrees C.. Column 2, lines 50-60 and column 5, lines 25-30. Gierek further teaches that the bath can include aluminum alloyed with metal such as zinc, silicon, magnesium and tin materials. Column 2, lines 50-55. Gierek provides that the aluminum coatings can be applied without flux when desired. Note Example VI, column 5, lines 25-40 where the coating is applied without any flux treatment as compared to Example VII, column 45-50, where a flux treatment is applied.

Gierek teaches all the features of this claim except the pretreatment with jet abrasive, precise temperature of the melt bath and the precise amounts of zinc, silicon, magnesium, and tin to be used in the aluminum melt.

Rallis teaches a method of applying aluminum alloy coatings on steel products. Column 2, lines 1-10, 34-50 and 64-68. Rallis teaches that the product is first prepared for coating. Column 2, lines 10-40 (heat treating) and column 6, lines 40-60 (heat treating and cleaning before coating). The cleaning preparation can include grit blasting (which would be a jet abrasive) the product. Column 6, lines 40-60. Rallis then teaches that the prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. Column 6, lines 55-68, for example and

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column 2, lines 35-50 and 64-68. The temperature of the bath can be 1000 to below 1341 degrees F (approximately 538 to 727 degrees C). Column 2, lines 34-40. Rallis further teaches that the bath can include aluminum alloyed with zinc, silicon, magnesium and tin materials. Column 2, line 64 through column 3, line 5.

Wb ~~Moreover~~
~~However~~, '213 teaches that a desirable aluminum alloy composition for improved corrosion resistance includes 2-18 % silicon, 2-8 % zinc, 0-2% magnesium and 0.1-1.5% Sn. See the Abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gierak to provide that the "cleaning" process before coating includes grit blasting (jet abrasive treatment) as suggested by Rallis with an expectation of desirable cleaning results, because Gierak teaches to provide a "cleaning" process before aluminum alloy melt coating and Rallis teaches that it is well known for "cleaning" to include grit blasting when preparing a surface for aluminum alloy melt coating. It would further have been obvious to modify Gierak in view of Rallis to optimize the temperature of the melt bath for the specific aluminum alloy used given that Gierak teaches a temperature range of approximately 550 to 950 degrees C, including 650 degrees C, and where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, it would have been obvious to modify Gierak in view of Rallis to perform the hot dip coating of the aluminum alloy using an alloy with the

components and range taught by '213 with an expectation of providing a desirably corrosion resistant plated article, because Gieriek teaches a desirable method for providing hot dip coating of an aluminum alloy on an iron or steel product using an aluminum alloy that can contain aluminum and alloying metal such as zinc, silicon, magnesium and tin and Rallis also teaches to providing hot dip coating of an aluminum alloy on a steel product using an aluminum alloy that can contain aluminum and zinc, silicon, magnesium and tin and '213 teaches a desirable aluminum alloy containing aluminum, zinc, silicon, magnesium and tin for improved corrosion protection. It would further have been obvious to optimize within the taught range of '213 to determine the optimum or workable ranges by routine experimentation. See *In re Aller*, 200 F.2d 454, 105 USPQ 233 (CCPA 1955). The Examiner understands the ranges given in '213 to be in weight percent as the description is in the conventional format for describing weight percent of alloys.

Response to Arguments

13. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

The new references to Rallis and Gieriek have been provided as to the hot dip aluminum alloy coating of iron/steel products without flux as claimed. The Examiner notes that while applicant has provided test results in the specification, a showing of unexpected results as to invention as claimed has not been made. For example, in Table

2 coating at 650 degrees C appears to have the same corrosion results as at 660 degrees C, and also is for a specific melt alloy (not the possible range of materials as claimed).

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers

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for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KATHERINE BAREFORD
PRIMARY EXAMINER